

Backflow and Cross Connection Control Program– Blue Ridge Parkway

The intent of this SOP is to accompany any Cross Connection policies that the Park has in place and to eliminate potential hazards to the potable water main and the water supply systems. This policy will not delegate responsibility for the prevention of contamination and pollution of the public drinking water supply, enforcement of this ordinance, or administration of this ordinance. The intent is also to apply the principle that the degree of protection should be commensurate with the degree of hazard.

1) Purpose of this Policy

- a) To protect the public potable water supply of any water system purveying water to the public inside the boundaries of the Blue Ridge Parkway against actual or potential cross-connection, backflow, and back siphonage by isolating and containing contamination or pollution that has occurred or may occur because of undiscovered or unauthorized cross-connection.
- b) To eliminate cross-connections, backflow and back-siphonage, or any other source of water or process water used for any purpose whatsoever, which may jeopardize the safety of the public potable water supply of the Blue Ridge Parkway.
- c) To establish a cross-connection, backflow and back-siphonage control program.
- d) This policy will comply with the Federal Safe Water Act (P.L. 93-523), the North Carolina State Administrative Code (Title 15A, Subchapter 18C, Subparagraph .0406), and all other State and Federal regulations as they pertain to cross-connections with the public water supply.

2) Certified Backflow Prevention Assembly Tester

- a) The tester will be responsible for making competent inspections and repairing or overhauling backflow prevention assemblies and reports of such repair to the responsible authorities on forms approved by the Blue Ridge Parkway.
- b) The tester shall include the list of materials or replacement parts used.
- c) The tester shall be equipped with and be competent to use all the necessary tools, gauges, manometers, and other equipment necessary to properly test, repair, and maintain backflow prevention assemblies.
- d) It will be the tester's responsibility to insure that original manufactured parts are used in the repair of or replacement of parts in a backflow prevention assembly.
- e) It will be the tester's responsibility not to change the design, material or operational characteristics of an assembly during repair or maintenance without prior approval of the Park's backflow prevention specialist or engineering office.
- f) A certified tester shall perform the work and be responsible for the competency and accuracy of all test reports.
- g) A certified tester shall provide a copy of all test and repair reports to the consumer as well as the Park's determined backflow specialist. A certified tester shall maintain such records for a minimum period of three years.
- h) All certified backflow prevention assembly testers must have their test equipment, which has been evaluated and/or approved by the Park's backflow specialist, registered and annually (at a minimum) checked for accuracy and calibrated, if necessary.
- i) All certified backflow assembly testers must become recertified every three years through an approved backflow prevention certification program.

3) Hazardous Facilities and Methods of Correction

- a) All commercial water users will be required to install a backflow prevention assembly on their incoming water service line. The type of backflow assembly will depend on the degree of hazard posed by the design and users.
- b) High hazardous uses include, but are not limited to: pumps and tanks handling sewage, radioactive, lethal, or toxic substances; boiler and steam connections; sewer waste lines; low inlets to receptacles containing toxic substances; coil or jackets used as heat exchangers; flush valve toilets without vacuum breakers; bacterial and viral materials, wells, tanks or other water supplies; water systems or hose connections with booster pumps, carbonation equipment, recycling systems, irrigation systems or similar hazard potential as determined by the Park.
- c) All high hazard facilities must have a containment assembly in the form of a reduced pressure zone backflow prevention assembly OR an acceptable "Air Gap".
- d) All industrial and commercial facilities not identified as "High Hazard" will be considered moderate hazard facilities. This includes all multi-family living units, apartments, condominiums, etc. All moderate hazard facilities must have a double check valve assembly as a minimum containment device.
- e) It is the standard to install a dual check assembly on single family residential units.
- f) All new construction and specifications shall be made available to the Park's appointed backflow specialist to determine the degree of hazard when in question.

4) Installation of Assemblies

- a) All backflow prevention assemblies will be installed in accordance with the manufacturer's installation instructions and in accordance with the standards of the Blue Ridge Parkway.
- b) All reduced pressure backflow assemblies will be installed above ground in approved enclosures. The installer is responsible for making sure the device is properly working when installed and to make available all installation and testing information for approval by the Park. In general, all backflow prevention assemblies shall be installed on the plumbing line beyond the meter, but prior to any branching of plumbing lines from the common line, such that all water passing through the water meter shall also pass through the protection device.
- c) No water shall be permitted at any time to bypass a backflow assembly. (If a by-pass is required while a backflow assembly is being tested or repaired, the by-pass line shall include a backflow assembly of equal design and size as the first.)
- d) General guidelines for location and installation requirements are as follows:

Degree of hazard	Type of service	Type of assembly	Size of device	Installation requirements	Location requirements
Moderate	Domestic	Double check	5/8 to 2"	Adjacent to water meter	Below ground in a 2" water meter box or above ground in a insulated enclosure
Moderate	domestic	Double check	>2"	Adjacent to water meter	Below ground in a precast drainable pit or above ground in a insulated enclosure
High	Domestic/irrigation	Reduced Pressure zone	5/8 to 2"	Adjacent to water meter	above ground in a insulated enclosure
High	Fire	Double check detector	2" and above	Adjacent to right of way	Below ground in a precast drainable pit or above ground in a insulated enclosure
High	Fire	Reduced pressure detector	2" and above	Adjacent to right of way	above ground in a insulated enclosure horizontal installation only

In areas where existing conditions make it unfeasible to comply with the installation requirements outlined in item (c) above, and when necessary to avoid conflicts or barriers, the Park's backflow designee shall approve alternative methods.

5) Testing and Repair

- Testing of backflow prevention assemblies shall be made by a certified backflow prevention assembly tester or may be contracted out to a licensed backflow testing contractor. Such tests are to be conducted upon installation and annually thereafter or at a frequency established by the Park's regulations.
- A record of all testing and repairs is to be retained by the Park. If municipal water is being supplied, copies of the records must be provided to the municipality provider within ten business days of conducting the test.

6) Concessioners

- The concessioner has the prime responsibility of preventing contaminants and pollutants from entering its potable water system or the public water system. The concessioner's responsibility starts at the point of delivery from public potable water system and includes all of its water system(s).
- The concessioner, at its own expense, shall install, operate, test, and maintain an approved back flow prevention assembly, or assemblies as directed by the Park.
- Tests, maintenance and repairs of back flow prevention assemblies shall be made by a certified back flow prevention assembly tester.
- The concessioner shall maintain accurate records of tests and repairs made to back flow prevention assemblies and shall maintain such records for a minimum of three years. The

records shall be on an approved form and include a list of materials or replacement parts used.

- e) Following any repair overhaul, re-piping, relocation &/or re-installation of an assembly, the concessioner shall be responsible for re-test same, to ensure the assembly is in good working condition and will prevent back flow.
- f) Whether through annual or required testing or routine inspection by the Park, or by contracted services, repairs to backflow assemblies must be completed within a specified time in accordance with the degree of hazard. Under no circumstance shall this time period exceed:
 - i) High Hazard 30 days
 - ii) Moderate Hazard.....60 days

7) Fire Protection & Irrigation Systems

- a) All connections for fire sprinkler systems connected to a water supply line shall be protected with an approved reduced pressure detector assembly or otherwise, as required in this policy. All fire systems using toxic additives or booster pumps shall be protected by an approved reduced pressure detector assembly at an approved location.
- b) All lawn sprinkler systems shall be equipped with a reduced pressure zone assembly as required by N.C.D.H.S.

8) Chemical Holding Tanks

- a) No person shall fill special use tanks or tankers containing non- potable water, pesticides, fertilizers and other toxic chemicals or their residues from a public water system except at a location equipped with an over-the-rim discharge of water or an approved reduced pressure backflow prevention device properly installed on the public water supply.
- b) No supplier of water shall permit the filling of such special use containers except at locations so specified.

9) Knowledge of troubleshooting and testing of backflow assemblies

- a) Only certified backflow testers may install, test, repair or troubleshoot backflow assemblies.
- b) Backflow testers must know how to locate and shutoff backflow valves in cases of emergency.
- c) Backflow testers must visually check backflow assemblies for leaks and damage periodically.
- d) Backflow testers must know each type of hazard or application and the type of backflow assembly it requires.

10) Site surveying

- a) Check water systems for possible cross-connections.
- b) Recommend installation of backflow prevention assemblies on each site that has a possibility of contamination with used or non-potable water, and/or hazardous material.
- c) If any of the above requires entering a confined space, reference the confined space operating procedures.

11) Assuring compliance and follow-up

- a) Have certified tester test the backflows after installation.
- b) Insure the proper backflow assembly for the hazard is used.
- c) Annually test backflow assemblies per the standards of the Parks BF & CC policies.
- d) Insure proper records are kept for each assembly with pertinent information such as: install date; type of assembly; manufacturer of assembly; model number; serial number; meter number, and annual test records.
- e) Initial and annual test records and dates should be maintained by hard copy and digitally.

12) Actual Backflow Occurrence

- a) Should a non-potable substance enter the public supply water during an actual backflow occurrence due to a back pressure or back siphon condition, follow the Park's emergency response action plan.

13) Ultimate Goal

- a) To have all connections that may pose a threat of contaminating the public drinking supply on a particular water system protected with an approved assembly to prevent harmful and hazardous chemicals or contaminants from entering the safe drinking water provided.

14) Consequences from departure of this SOP

- a) The delivery of safe drinking water to our supply lines will not be assured if a backflow were to happen and hazardous chemicals enter the plumbing systems.
- b) Legal measures by those harmed if an occurrence happens.
- c) Possible fines.
- d) The spread of disease due to harmful chemicals or contaminants backflowed into the public drinking water supply.
- e) Public sickness due to backflow of harmful chemicals or contaminants.
- f) Death due to backflow of harmful chemicals or contaminants.